DOCUMENT RESUME

ED 113 038 PS 008 078

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TITLE Perceptual, Cognitive, and Affective Perspective Taking and Empathy in Kindergarten through Third-Grade Children.
PUB DATE Apr 75
NOTE 25p.; A condensed version of this paper was presented at the Biennial Meeting of the Society for Research in Child Development (Denver, Colorado, April 10-13, 1975)

EDRS PRICE MF-$0.76 HC-$1.58 Plus Postage
DESCRIPTORS *Affective Behavior; Behavior Patterns; Cognitive Development; *Emotional Development; *Empathy; *Identification (Psychological); Perceptual Development; *Primary Education; Psychological Patterns; Sex Differences; Social Development; Social Science Research
IDENTIFIERS Perspective Taking

ABSTRACT

The development of perceptual, cognitive, and affective perspective taking and empathy was investigated in 96 kindergarten through third-grade children. Cognitive perspective taking was found to increase between second and third grades. Affective perspective taking, in situations controlling for the likelihood of the subjects' projecting their own affective responses to story characters, decreased with grade level. Perceptual perspective taking showed no grade changes, and empathy was curvilinearly related to grade level. Males were found to be better perceptual and affective perspective takers than females. Task intercorrelations were low and nonsignificant, supporting the view that perspective taking and empathy are multidimensional social-cognitive constructs. (Author/BRT)

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Perceptual, Cognitive, and Affective Perspective Taking and Empathy in Kindergarten Through Third-Grade Children[1]

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As Ambron and Irwin (1975) have noted, most investigators of children's perspective taking ability have neglected to consider the possible multidimensional nature of this cognitive skill. Therefore, there has been little attention directed to both the development of and interrelatioships among types of perspective taking. Three dimensions of this ability were of interest in this investigation: perceptual perspective taking, the ability to assume another person's perceptual viewpoint; cognitive perspective taking, the ability to assess another person's knowledge or intentions; and affective perspective taking, the ability to assess another person's emotional state.

In her review of social-cognitive development, Shantz (in press) indicates the paucity of research relating perspective taking skills to social behavior. The role of perspective taking skills in children's empathic behavior has been discussed by Feshbach (Note 1) who conceives of an empathic response as being a composite of two related but distinct types of skills: (a) cognitive, the ability to discriminate and label affective states and to assume the perspective of another and (b) affective, the capacity to respond emotionally.

The purpose of the present study was to assess (a) grade and sex differences in each of the abilities of perceptual, cognitive, and affective perspective taking and empathy and (b) the interrelationships among these abilities in the kindergarten through third-grade period, an interval of marked development in effective interpersonal perception and interaction (Flapan, 1968; Flavell, Botkin, & Fry, 1968; Livesley & Bromley, 1973).

Numerous writers (e.g., Borke, 1975; Fishbein, Lewis, & Keiffer, 1972;

Garvey & Hogan, 1973; Hoffman, Note 2) have criticized past measures of perceptual and cognitive perspective taking for requiring verbal and cognitive abilities too advanced for the young child. Affective perspective taking and empathy measures have been criticized for failing to consider the possible effects of the child's projecting his own affective response to another person (Deutsch, 1974; Chandler, Note 3; Iannotti & Meacham, Note 4; Shantz, Note 5). Consideration of these criticisms led to choosing a perceptual perspective taking task that used easily discriminable stimuli and required a nonverbal response; a cognitive perspective taking task that attempted to make the "other" as real as possible; and an affective perspective taking and empathy task that controlled for projection.

It was hypothesized that (a) perceptual, cognitive, and affective perspective taking and empathy would increase with grade level and (b) the interrelationships among these abilities would be positive and increase in magnitude with increasing grade level.

Method

Subjects

Subjects were 96 middle- and lower middle-class children from two neighboring Roman Catholic grammar schools in Chicago; 24 children, 12 males and 12 females, were selected from kindergarten, first-, second-, and third-grades. In order, mean ages for children at these grade levels were 5.31, 6.36, 7.27, and 8.43 years.

Materials

Perceptual perspective taking task. This task was an adaptation of the Fishbein et al. (1972) task and incorporated aspects of other tasks on which even preschool children have had some degree of success. Recognizable

objects rather than abstract figures; a real other (the experimenter) rather than a doll; and a construction response rather than a picture-pointing one were used. Stimuli consisted of two identical sets of three toys, each having distinguishable front, back, and right and left side views. The toys used were three brightly colored soft plastic Walt Disney characters (Mickey Mouse, Goofy, and Pinnochio) each measuring about $4\frac{1}{2}$-inches in height; since the toys were made by the same company, gross differences in physical attractiveness were minimal.

Each set of toys was displayed on a circular revolving plastic tray in the manner shown in Figure 1; each tray measured $10\frac{1}{2}$-inches in diameter and $\frac{1}{2}$-inch in height. Arrows in Figure 1 indicate the direction in which the toy was glued to the tray surface, arrowheads corresponding to the characters' faces. The four views illustrate the four perceptual perspectives the child was asked to take (0-, 90-, 180-, and 270-degrees from the front position).

The child was given one point each time he correctly replicated the experimenter's particular perceptual viewpoint. Since there were four viewpoints, scores ranged from 0 to 4 with a score of 4 indicating accurate perceptual perspective taking for each viewpoint.

Cognitive perspective taking task. This task was derived from Flavell et al. (1968) and has been used with subjects in the age range included in this study (Flavell et al., 1968; Selman, 1971; Irwin & Ambron, Note 1). It involved the child's taking the hypothesized viewpoint of a friend rather than a stranger and, being a verbal task, complemented the perceptual perspective taking task which required a nonverbal response.

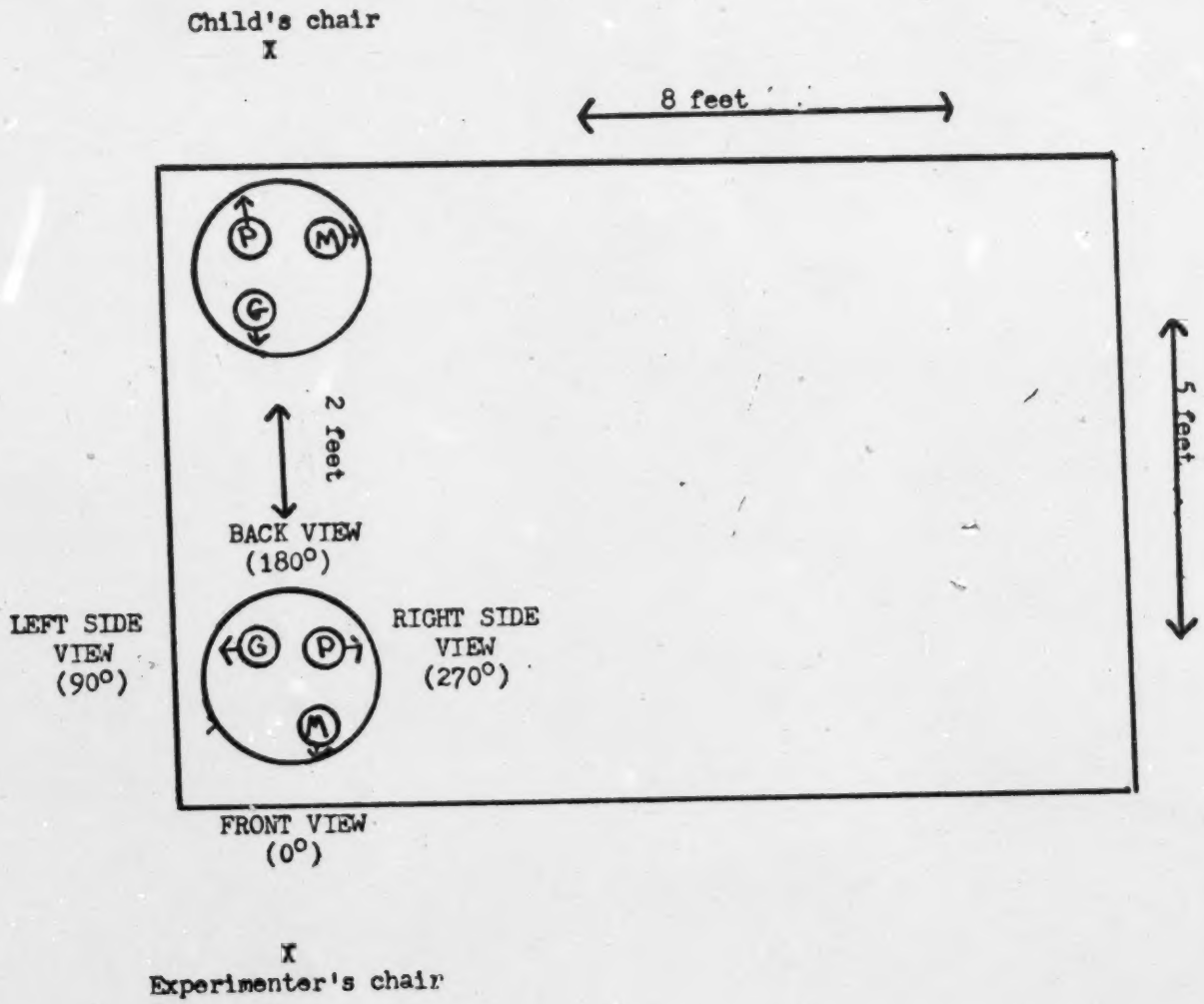

Figure 1. Positions of toys on trays (M= Mickey Mouse, G = Goofy, and P = Pinnochio), child-experimenter seating arrangement, and perceptual perspectives to be taken in the perceptual perspective-taking task.

Stimuli consisted of an ordered series of seven pictures depicting a story about a boy's being chased by a dog, running down the street, and climbing a tree to eat an apple as the dog trots away. The specific illustration on each card was as follows:

Card 1: The boy is walking along a sidewalk, whislting and brushing a stick against a wooden fence.

Card 2: The boy looks frightened and drops his stick as he sees a dog running toward him.

Card 3: The boy runs, looking anxiously over his shoulder at the dog who is following close behind.

Card 4: The boy is shown running with arms outstretched toward an apple tree. The dog is not shown in the picture and the boy's face (showing fear in the two previous cards) is hidden by a branch of the tree.

Card 5: The boy climbs the tree, with the dog nipping at his heels.

Card 6: The boy is seated on a branch of the tree, munching an apple; the dog is nowhere in sight.

Card 7: The boy is shown standing up in the tree. The dog can be seen across the street and shows no evidence of ferocity. Although the boy's face is partly turned in the dog's direction, it shows no particular emotional expression.

The removal of cards 2, 3, and 5 from this series eliminates the fear of dog motive for climbing the tree and shows the boy first walking and then running toward an apple tree, climbing it, and eating an apple. There is still a dog in the last picture, but it is unrelated to the motivational theme of the four-card story. The child can thus egocentrically incorporate

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the fear of dog motive into the predicted story of another who views only the four-card sequence.

Selman's (1971) categorical scoring system, reflecting qualitative differences in cognitive perspective-taking was used. A score of 0 was given to the responses of children who could not perform any transformation of the original story; the angry dog remained the motive for the boy's climbing the tree even in the predicted story of another viewing only the four-card sequence. A score of 1 was given to the responses of children who told a straightforward, perceptually correct, four-card story, but were unable to maintain this story line upon being questioned about the motivational conditions of the four-card story. A score of 2, the highest assigned to responses on this task, was given when the child successfully told an appropriate four-card story and indicated upon questioning that the other person viewing the four-card sequence did not have the information available to one viewing the seven-card sequence and that this lack of information influenced the way the other person would tell the story.

Affective perspective taking and empathy task. The materials for this task were originally devised by Borke (1971); they consisted of two sets of eight pictures, one for males and one for females, depicting a boy or girl in situations in which the emotions of happiness, sadness, fear, and anger are aroused. The pictures in this task differed from Borke's in one crucial regard: half of them (the second situation described for each emotion below) showed the character with a facial expression representing an emotion that was inappropriate to the situation described.

The pictures illustrated a boy or girl displaying each of the four

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emotions in two situations as follows: happiness: getting a new toy as a gift and dreaming of being chased by a tiger; sadness: watching a loved one leave and eating one's favorite ice cream; fear: being alone in a dark room and watching one's brother take away a favorite toy; and anger: being forced to eat a disliked food and falling down and hurting oneself.

This task, then, minimized the child's tendency to project himself into the situation and insured that in four of the situations a correct affective perspective taking response was the result of the child's focusing on how the character was affectively responding to the situation described.

Four scores were derived from this task: the number of correct responses in (a) the four appropriate affect stories and in (b) the four inappropriate affect stories; (c) the number of responses in the inappropriate affect stories in which the child predicted the character's affective response in accordance with the cues provided by the narration ("projections");and (d) the number of empathic responses in which the child reported that he was experiencing the same affect attributed to the story character. One point was given for each response in the above categories giving a range of 0 to 4 for the appropriate and inappropriate affective perspective taking and projection scores and a range of 0 to 8 for the empathy scores. Thus, a score of 4 on the appropriate and inappropriate affective perspective taking and projection measures indicated accurate affective perspective taking and high projection, respectively, while an empathy score of 8 indicated perfect self-other affect matching.

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Procedure

Two males and two females in each grade were randomly assigned to one of six counterbalanced task presentation orders. For each task, the child was tested individually by a 23-year-old white male.

Perceptual perspective taking task. Prior to the task, the child was shown the Walt Disney characters and how the two trays revolved. It was also pointed out that the child and the experimenter had identical trays and toy arrays. Each tray was then placed at opposite sides of two long tables (each 8 x $2\frac{1}{2}$-feet) placed side to side. The distance between the two trays was about 2-feet (see Figure 1). The toy array on the experimenter's side was placed in the FRONT VIEW position as indicated in Figure 1 and the child's tray was placed midway between the BACK and RIGHT SIDE VIEW (about 225-degrees from the FRONT VIEW position).

The experimenter then instructed the child to "Turn your tray so that you see Mickey Mouse, Goofy, and Pinnochio just the way I'm seeing them now." Following the child's response, the experimenter rotated his tray in clockwise and counter-clockwise movements to positions that were 90-, 270-, and 180-degrees from the FRONT VIEW position and again delivered the instructions; these positions are labelled in Figure 1 as LEFT, RIGHT, and BACK SIDE VIEWS, respectively. No corrective feedback was provided and the position of the child's Mickey Mouse was recorded at the time of testing.

Cognitive perspective taking task. The experimenter presented the seven-card sequence to the child and asked him to tell a story about the pictures: "Do you like telling stories about pictures? Well, here are some for you; they're just like cartoons, aren't they? All of them tell

part of the story. Can you tell me what's happening in this picture?" (the experimenter pointed to the first picture). The child's response to each card was recorded verbatim at the time of testing.

Following completion of the seven-card story, the child was asked to name a friend with whom he/she played a lot. The experimenter then said:

> Well, let's say I saw _____ and asked him/her to look at some pictures and to tell a story about them. _____says, "OK, I think I'd like to do that. Let's say _____ is going to come through this door and is going to sit right where you're sitting now; he's/she's going to look at some pictures (the experimenter here took away cards 2, 3, and 5 in full view of the child). I'll say, "_____, could you tell me what's happening in these pictures?" (Subject's name), what do you think your friend will say is happening in this picture?" (the experimenter pointed to the first picture).

Again, responses were recorded verbatim.

At the end of the second story, the child was questioned as to (a) the motive his/her friend attributed to the boy's climbing the apple tree: "Why will _____ say the boy climbed the tree?" and (b) the reason for the dog's presence in the last card: "What will _____ say the dog is doing here?" (the experimenter pointed to the dog in the last card). Responses here were also recorded verbatim.

Affective perspective taking and empathy task. Prior to the task, the child was shown four faces of a same-sex character expressing the emotions of happiness, sadness, fear, and anger. The child was asked to "Show me the face of the boy/girl who is happy (sad, afraid, angry)." This procedure was used to give the child practice in matching affect labels with their facial expressions.

The child was then presented with each of the eight pictures de-

scribed above in a randomly determined order such that an appropriate affect display was followed by an inappropriate display; it was felt that this would minimize the child's realizing that some trick was being played. After the affect-face matching, the experimenter said, "Now we're going to look at some more pictures of the boy/girl. This time he'll/she'll be doing different things and I'll tell you about them." With each picture, the experimenter provided a brief verbal description of the situation depicted. The child was then asked two questions: (a) "How does he/she feel?" (affective perspective taking) and (b) "How do you feel now?" (empathy probe).

Empathy responses were those in which the second response was an affect label that matched the one the child gave to the first question. Responses had to be exact affect labels or synonyms ("glad," "good," "fine," or "great" for "happy"; "unhappy" for "sad"; "scared" or "frightened" for "afraid"; and "mad" for "angry "). Subjects reporting a consistent response to all empathy probes (e.g., "fine," "good," "OK," or "happy") were not given credit for an empathic response even when these responses happened to match those given to the affective perspective taking question. All responses were recorded verbatim at the time of testing.

Results

The means for perceptual, cognitive, appropriate affective, and inappropriate affective perspective taking; projection; and empathy are presented by children's grade and sex in Table 1. In Figure 2, mean grade performance collapsed over sex is plotted for each dependent measure. As can be seen from Figure 2, performance on the cognitive per-

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Table 1

Means and Standard Deviations for All Scores by Children's Sex and Grade

Sex	Grade		Score					
			Perceptual Perspective-Taking	Cognitive Perspective-Taking	Appropriate Affective Perspective-Taking	Inappropriate Affective Perspective-Taking	Projection	Empathy
Males[a]	K	M	1.50	0.83	2.67	2.00	0.67	1.25
		SD	1.17	0.39	0.89	0.95	0.65	2.22
	1	M	1.83	0.92	3.17	2.00	1.17	1.58
		SD	1.34	0.61	0.94	1.21	0.94	2.78
	2	M	1.75	0.92	3.00	1.83	1.17	3.42
		SD	1.42	0.51	0.74	1.03	1.27	3.60
	3	M	1.50	1.42	3.67	1.58	1.50	2.83
		SD	1.62	0.79	0.65	1.08	0.90	3.56
Females[a]	K	M	1.16	1.00	2.00	1.33	0.83	1.67
		SD	1.03	0.60	0.95	0.89	0.58	2.84
	1	M	1.17	1.17	2.75	1.58	1.50	3.25
		SD	1.47	0.58	0.87	0.90	0.67	3.70
	2	M	0.92	0.67	2.92	1.17	2.00	4.75
		SD	1.08	0.65	0.90	0.94	1.04	3.77
	3	M	1.50	1.50	3.67	0.58	2.42	1.92
		SD	1.00	0.67	0.49	0.90	0.79	2.97

[a] n = 12 at each grade level.

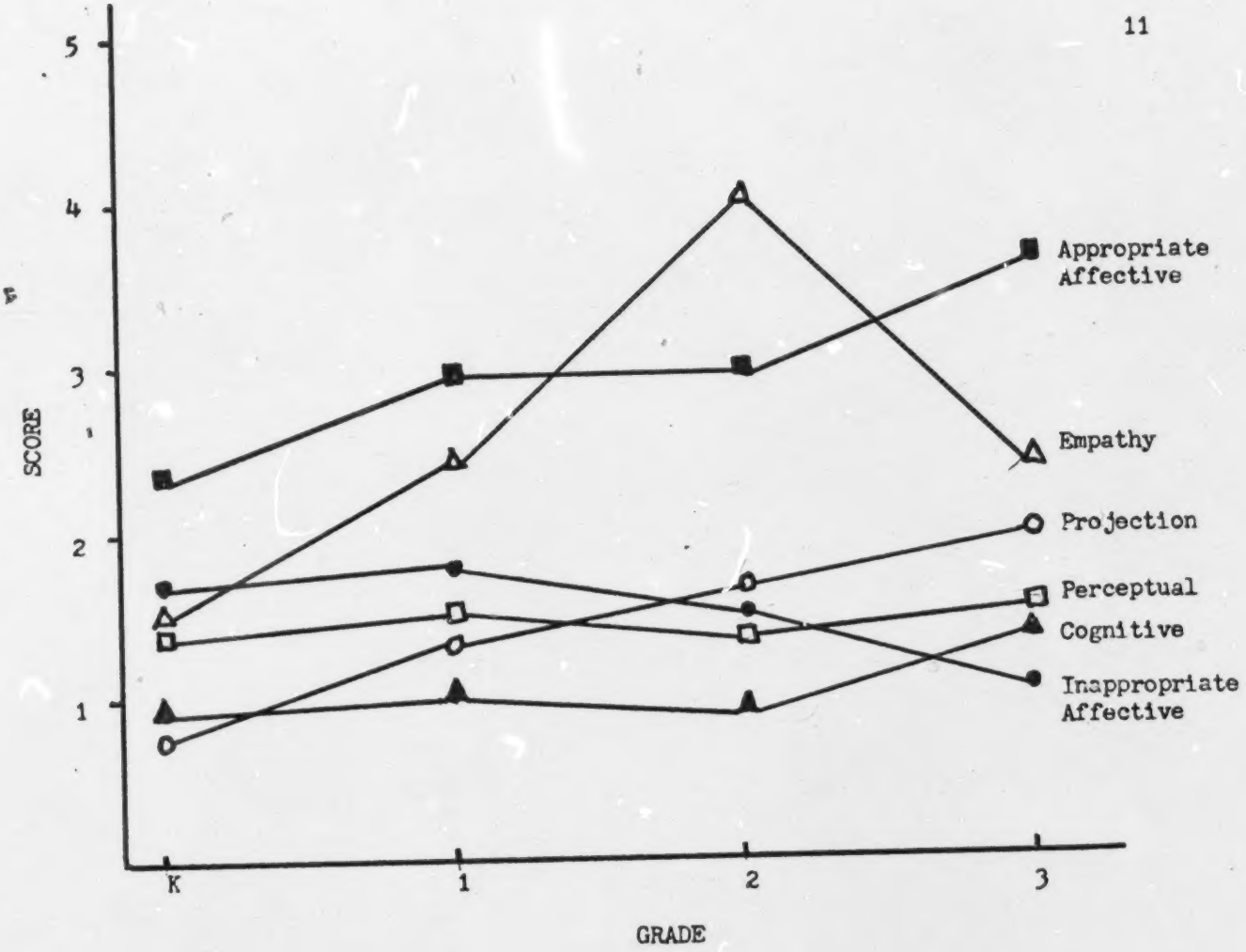

Figure 2. Mean task performance across grade levels.

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spective taking, appropriate affective perspective taking, and projection measures seems to have been an increasing linear function of grade level while inappropriate affective perspective taking seems to have been a decreasing linear function of grade level. Trend analyses confirmed these observations, significant linear components being obtained for cognitive perspective taking (F (1, 88) = 6.29, $P < .01$), appropriate affective perspective taking (F (1, 88) = 28.72, $P < .0001$), inappropriate affective perspective taking (F (1, 88) = 5.07, $P < .03$), and projection (F (1, 88) = 23.12, $P < .0001$). As can also be seen from Figure 2, empathic responding was a curvilinear function of grade level, increasing up to the second-grade and then decreasing for third-graders to the first-grade performance level; this quadratic trend was also significant (F (1, 88) = 4.11, $P < .05$).

To test for significant spurts in task performance between grade levels, single degree-of-freedom planned orthogonal contrasts were designed (cf. Finn, 1972). A summary of the results of these multivariate and subsequent univariate analyses of variance (cf. Bock, in press) is presented in Table 2. Significant adjacent grade differences were obtained only between second- and third-graders, third-graders being significantly better cognitive and appropriate affective perspective takers and poorer empathizers (marginal significance). Grouping kindergarteners with first-graders and second- with third-graders revealed that the older children were significantly better appropriate affective perspective takers, significantly worse inappropriate affective perspective takers, and projected significantly more. The finding of significantly higher

Table 2

Summary of Multivariate and Univariate Analyses of Variance for Planned Contrasts

Multivariate				Univariate				
Source	df	F	P	Task	MS	df	F	P
3 vs. 2	6	6.14	.0001	Perceptual	0.33	1	0.20	0.65
				Cognitive	5.33	1	14.78	0.0003
				Appropriate	6.02	1	9.00	0.004
				Inappropriate	2.08	1	2.11	0.15
				Projection	1.69	1	2.17	0.14
				Empathy	35.02	1	3.37	0.07
2 vs. 1	6	0.95	.47					
1 vs. K	6	1.87	.10					
K, 1 vs. 2,3	6	5.16	.0002	Perceptual	0.00	1	0.00	1.00
				Cognitive	0.51	1	1.41	0.24
				Appropriate	10.67	1	15.95	0.0002
				Inappropriate	4.59	1	4.66	0.03
				Projection	12.76	1	16.37	0.0002
				Empathy	40.04	1	3.87	0.05
M vs. F	6	2.86	.01	Perceptual	5.04	1	3.06	0.08
				Cognitive	0.09	1	0.26	0.61
				Appropriate	2.04	1	3.05	0.08
				Inappropriate	11.34	1	11.51	0.001
				Projection	7.59	1	9.74	0.003
				Empathy	9.38	1	0.90	0.34
Error	83			Perceptual	1.65	88		
				Cognitive	0.36	88		
				Appropriate	0.67	88		
				Inappropriate	0.99	88		
				Projection	0.78	88		
				Empathy	10.38	88		

empathizing for older subjects, however, is due to the high empathy scores of second-graders.

In Table 2 is also presented the result of the sex contrast; in general, males performed better than females: they were better perceptual and appropriate affective perspective takers (marginal significance); significantly better inappropriate affective perspective takers; and projected significantly less than females. All sex x grade interactions were nonsignificant.

How well were the perspective taking and empathy scores interrelated? Table 3 presents the correlation matrix for all six dependent measures for the entire sample. Interrelationships among the perspective taking tasks and between the perspective taking tasks and empathy were all low and nonsignificant. Furthermore, these intercorrelations revealed no consistent pattern with increasing grade level[2] though a few significant correlations were obtained for males or females within grade levels[3]; considering the number of correlations computed, however, the significance of these correlations is questionable.

Discussion

The prediction that perceptual, cognitive, and affective perspective taking and empathy would increase with grade level was only partially supported. Only cognitive and appropriate affective perspective taking increased significantly with grade level while inappropriate affective perspective taking significantly decreased; concomitant with this latter finding was a significant increase in projection with grade level. Empathy was curvilinearly related to grade level.

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Table 3

Pearson Product-Moment Correlations Between Measures

Measure	2	3	4	5	6
1. Perceptual Perspective-Taking	.00	.18	.11	-.08	-.12
2. Cognitive Perspective-Taking	...	.04	-.17	.20	-.14
3. Appropriate Affective Perspective-Taking	...	...	.17	.33*	.17
4. Inappropriate Affective Perspective-Taking	...	...	...	-.59*	-.09
5. Projection	...	...	...	...	.28*
6. Empathy	...	...	...	...	...

* $p < .01$

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The significant increase in cognitive perspective taking between second- and third-grade confirms the findings of Flapan (1968), Flavell et al. (1968), and Livesley and Bromley (1973) who have described the 6- to 9-year-old interval as one of a marked development in the child's advancing from a literal-factual to an inferential-psychological interpretation of social events.

The findings for inappropriate affective perspective taking have important methodological implications since performance on stories controlling for projection led to results directly opposed to those obtained in stories where no such control was provided. Iannotti (Note 6) has reported a similar finding for a sample of 60 6- and 9-year-old males. Perhaps older subjects were more attentive to the verbal cues of the narratives than the pictorial cues of the illustrations[4] (cf. Tversky, 1973). In an extension of the present study, Kurdek and Rodgon (in press) found this trend to persist through the sixth-grade.

Perceptual perspective taking performance remained at a fairly low level for the present subjects; as assessed in this study, this skill seems to be a relatively late developmental acquisition. Nigl and Fishbein (1974) and Kurdek and Rodgon (in press) have provided evidence that changes in this ability occur in the 9- to 11-year-old interval.

The better performance in perceptual perspective taking by males supports the similar finding of Ambron and Irwin (1975), though most other studies (e.g., Nigl & Fishbein, 1974) have failed to find any consistent sex differences. Males' better performance better performance in inappropriate affective perspective taking is also difficult to

explain. Perhaps males and females responded differentially to perceptual-spatial and verbal stimuli (cf. Maccoby & Jacklin, 1974).

The curvilinear relationship between empathy and grade level is puzzling. Possibly, third-graders found it difficult to get involved with a two-dimensional character; the study of empathy using videotaped episodes such as those used by Deutsch (1974) would be instructive.

The nonsignificant correlational findings lead one to conclude that perceptual, cognitive, and affective perspective taking and empathy are fairly complex independent skills. Additional evidence for this conclusion comes from Flavell et al. (1968, p. 99) and Shantz (Note 7). Retrospective consdieration of the quite diverse information-processing demands issued by each task makes the lack of homogeneity among these social-cognitive skills a more understandable phenomenon (cf. Klahr & Wallace, 1970; Toussaint, 1974).

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Footnotes

1

This paper is based on the author's M.A. thesis submitted to the Graduate College of the University of Illinois at Chicago Circle. A condensed version of this paper was presented at the meeting of the Society for Research in Child Development, Denver, April 1975. The author would like to thank Sisters Mary Justilla and Fulgenta and the teachers, parents, and children of St. John of God and St. Joseph grammar schools for their cooperation. He would especially like to express his appreciation to Maris Rodgon, Judy Torney, Alan Benton, Leonard Kroeker, and Jeanne Foley (Loyola University of Chicago) for their assistance in the planning and design of this study. Thanks to Dee Sepkowski and Elaine Beach for their critical reading of the manuscript and to Vicky, Jeff, Eddy, and Greg for their influence on my life.

2

For second-graders, inappropriate affective perspective taking was positively correlated with perceptual perspective taking (r = .36, $P < .04$) but negatively correlated with empathy (r = -.36, $P < .04$). Empathy was negatively correlated with perceptual perspective taking for kindergarteners (r = -.43, $P < .02$) and with cognitive perspective taking for first-graders (r = -.49, $P < .008$).

3

For kindergarten and first-grade males, cognitive perspective taking was negatively correlated with empathy (r = -.68, $P < .007$ and r = -.79, $P < .001$, respectively). For kindergarten females, perceptual perspective taking was positively correlated with inappropriate affective perspective taking (r = .53, $P < .04$) and negatively correlated with empathy (r = -.54, $P < .04$). For first-grade females, perceptual and inappropriate affective perspective taking were negatively correlated (r = -.49, $P < .05$). For second-grade males, perceptual perspective taking was positvely correlated with both cognitive perspective taking (r = .59, $P < .02$) and empathy (r = .50, $P < .05$) while for second grade females the relationship between perceptual and cognitive perspective taking was negative (r = -.69, $P < .007$). For third-grade males, cognitive and inappropriate affective perspective taking were negatively correlated (r = -.73, $P < .003$); for third-grade females, inappropriate affective perspective taking and empathy were positively correlated (r = .56, $P < .03$).

4

The author would like to thank Leon K. Miller for pointing out this possible explanation.